

HODGES VILLAGE DAM
OXFORD, MASSACHUSETTS

FOREST MANAGEMENT PLAN
MASTER PLAN APPENDIX B

AND

FISH AND WILDLIFE MANAGEMENT PLAN
MASTER PLAN APPENDIX D

Department of the Army
New England Division, Corps of Engineers
Operations Division
Waltham, Massachusetts

February 1981

DISPOSITION FORM

For use of this form, see AR 340-15; the proponent agency is TAGO.

REFERENCE OR OFFICE SYMBOL

SUBJECT

NEDOD-P

Master Plans, Appendices B & D, Forest, Fish and Wildlife Management Plan, Hodges Village Dam.

TO

See Distribution

FROM

Chief, Operations Division

DATE

28 August 1981

CMT 1

Mr. Mitchell/pp/305

1. The subject appendices, prepared in accordance with ER 1130-2-400, dated May 1971, has been approved by the Division Engineer.
2. The plan has been developed to increase the value of reservoir lands for recreation and wildlife, and to promote natural ecological conditions by following accepted conservation practices.
3. This plan has been developed in coordination with the U.S. Fish and Wildlife Service, and the Massachusetts Divisions of Fisheries and Wildlife; and the Town of Oxford.



ANDRELIUNAS

Incl
as

Distribution:

- (2) CDR USACE (DAEN-CWO-N)
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- (15) Operations Division, NED
- (1) Planning Division, NED
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For use of this form, see AR 340-15; the proponent agency is TAGO.

REFERENCE OR OFFICE SYMBOL

NEDOD-P

SUBJECT

Master Plan Appendices B and D, Forest and Fish and Wildlife Management Plan, Hodges Village Dam

TO Commander

FROM Chief, Operations
Division

DATE 20 August 1981
Mr. Mitchell/bp/305

CMT 1

1. Inclosed for your approval is the Forest and Fish and Wildlife Management Plan for Hodges Village Dam. This plan will serve as Appendices B and D to the Master Plan for this project.

2. It has been prepared in conjunction with ER 1130-2-400, dated 28 May 1971. It has been reviewed by NED Planning, Engineering and Real Estate Divisions; and the Massachusetts Department of Environmental Management, the U.S. Fish and Wildlife Service and the Town of Oxford. Appropriate changes have been incorporated.

3. Division Engineers have been designated as approval authority for these plans by ER 1130-2-400. Information copies are to be forwarded to OCE upon approval.


ANDRELIUNAS

Incl
as

CF: Oper Div File

TO: Chief, Operations

FROM: Commander

DATE:

CMT 2

APPROVED



DISAPPROVED





C.E. EDGAR, III
Colonel, Corps of Engineers
Commanding

HODGES VILLAGE DAM
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ACKNOWLEDGEMENTS

The Corps of Engineers, New England Division, wishes to thank the following people for their effort in developing this natural resource management plan:

Mr. John Clarkin - Park Manager TRB

Ms. Joan Cyr - Park Ranger TRB

Mr. Charles Freeman - Planning Division

Mr. David Wood - Engineering Division

Mr. Russel Keeler - Real Estate Division

Mr. John Mitchell - Operations Division

Ms. Louraine Bogosian - Word Processing

Reprographics Section - Graphics and Reproduction

Also, thanks to the U.S. Fish and Wildlife Service and the Massachusetts Division of Fisheries and Wildlife for their review comments of this plan.

HODGES VILLAGE DAM

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SECTION 1. INTRODUCTION

Purpose

The lands, forests, and water of Hodges Village are valuable assets to the surrounding areas providing diverse recreational opportunities and preserving natural areas in public ownership as well as protecting the lakes and streams within the flood control project. The intelligent management of the lands and waters according to sound ecological practices will insure their existence and continued productivity for future generations.

The purpose of this natural resource management plan is to provide a general description of the forest resources and fish and wildlife contained within the project boundaries, and to provide interim guidelines on the general techniques to be used to manage those resources.

Authority

This plan constitutes of Appendix B (Forest Management Plan) and Appendix D (Fish and Wildlife Management Plan) to the project master plan authorized under ER-1130-2-400 dated 28 May 1971.

Management Objectives

The objectives of this management plan are to outline management practices which are compatible with flood control operations and multiple-use practices at Hodges Village Dam, and to provide for the proper ecological management of forest, fish and wildlife resources.

Specific objectives are:

- Protect and enhance natural beauty.
- Develop wildlife habitat to attract and support the greatest variety of naturally occurring species.
- Provide for recreational use of project natural resources including hunting, fishing, nature observation, and other day use.
- Provide wood products for project and commercial purposes.

Coordination

This plan has been coordinated with the Massachusetts Division of Fisheries and Wildlife, the U.S. Fish and Wildlife Service, and the town of Oxford.

History

The town of Oxford, incorporated in 1713, was an agricultural area during its first century of development. The Nipmuc Indians were the first settlers living off the land through simple agricultural means. With the migration of English families Oxford saw a transition from agriculture to industry (in the nineteenth century). For the next hundred years, Oxford became industrialized from the sale of manufactured products produced in newly built shops and mills. Ranging from the manufacturing of sythes and nails to pig iron and fabrics, Oxford was known throughout New England for its school of artisans in millwrighting, pull-mills, and shafts. The peak of the industrial phase was reached around 1850 when it progressively dwindled and gave way to larger industry in adjacent towns.

The only working reminders of the industrial era are the North Oxford mills, which manufacture rugs, the Saad Garnetting Mills, and several small chemical, sand and gravel operations. Oxford is now chiefly residential with residents commuting to adjacent towns for employment. At one time the industrial era probably had a detrimental impact on the natural environment, but the existing small industries have little or no significant impact on the environment.

SECTION 2. PROJECT DESCRIPTION

Location

Hodges Village Dam is situated on the French River 15 miles above its confluence with the Quinebaug. The reservoir lies in the town of Oxford. Access to the area is by Massachusetts Route 12 which is easily reached by Massachusetts Route 52, U.S. Route 20, and the Massachusetts Turnpike.

Acquisition

Hodges Village Dam is an element of the flood protection plan for the Thames River Basin which was approved by the Flood Control Act of 18 August 1941 (Public Law 77-228). The total area of the project is 1,137 acres of which 873 are owned in fee and 264 acres are held in flowage easement. Construction of the dam was completed in October 1959.

SECTION 3. PHYSICAL AND ECOLOGICAL CHARACTERISTICS

Topography

The terrain surrounding the reservoir can be generally described as hilly with moderate relief. Elevations in the vicinity of the reservoir range from about 470 feet NGVD in the streambed at the base of Hodges Village Dam to about 840 feet NGVD on Taft Hill, south of Oxford, overlooking the Hodges Village Reservoir. North of the reservoir, the French River flows through a generally narrow valley flanked by high, steep-sided hills. Within and below the reservoir, the valley widens and is partially lined with terraces. When filled to capacity, the reservoir would inundate two ponds and large areas of marsh and swamp.

Climate

The Hodges Village Dam and Reservoir area has a variable climate characterized by frequent periods of heavy precipitation. The average annual precipitation is about 45 inches.

Average annual temperature is 48°F. Monthly averages range from about 70°F in July and August to 24°F in January and February. Extremes of more than 100°F and less than -15°F have been recorded.

Geology and Soils

The bedrock underlying the reservoir is chiefly granite rock and phyllite. North of the dam, the French River flows through a valley with a narrow flood plain. Ravines separate flat areas and have small ponds and wetlands. In and below the reservoir area the valley widens. This area is overlain with glacially stratified drift and alluvium. These coarse-grained materials are good sources of gravel and were actively mined in two pit locations within the project area and continue to be mined on lands immediately adjacent to the project area.

The soil in the area of the French River valley that was underlain by ice-contact stratified drift is well-drained and nutrient deficient. The alluvium is well-drained, but more fertile except in the swamp deposits and small wetlands scattered throughout the region. Soils are of the Merrimac-Hinckley-Windsor association on hillsides with Aubres and Muck and Peat occurring in the lowlands.

An accurate updated soils map has not been prepared for the Oxford area. The USDA Soil Conservation Service is currently working toward mapping the soils of the entire state by the 1980's. When available this information will help guide management efforts.

Area Classification

Forest Inventory

A timber inventory was conducted during the winter of 1981. The Massachusetts Map Down, a Vegetative Cover and Land Use Map completed in 1971 by the University of Massachusetts and several cooperating agencies was used to delineate forest types. Field surveys were then conducted to classify each type according to the guidelines in Forest Cover Types of North America published by the Society of American Foresters (1975), and to determine height classes and percent of crown closure.

Variable radius plots were taken at random locations using a prism with a 10 basal area factor. Volumes were estimated at the 90% confidence level.

Exhibit A, Table 2 gives estimates of timber volume by species on the project. The estimates were based on the International 1/4 inch rule.

Forest Types

There are seven forest cover types at Hodges Village Dam.* The largest type is white pine - northern red oak - white ash (type 20) on 231 acres. White oak and red maple are the chief associates, with bigtooth aspen, black cherry, and paper birch in small numbers. This type follows "old field" white pine or appears on land never cleared for agriculture and may become climax, but will tend towards a white pine-hemlock type in cooler, more moist sites, and towards hardwoods on drier sites.

The second largest cover type is type 52, white oak - red oak - hickory covers 146 acres on the west side of the reservoir area. This is the characteristic type of the Central Forest and is near the northern limit of its range here in Massachusetts. At Hodges Village the type is composed primarily of northern red oak and white oak with shagbark and pignut hickory, butternut, white pine and bigtooth aspen occasionally found.

Type 19, gray birch - red maple, is found on a total of 125 acres of abandoned fields and wet margins of streams. Principal associates are quaking and bigtooth aspen, pin cherry, white pine, northern red and white oak, and eastern red cedar.

White pine (Type 21) is the fourth largest forest cover type, growing on 85 acres. White pine is nearly pure in most stands with quaking aspen, pitch pine, gray birch, paper birch, black cherry, pin cherry, white ash,

*See listing of scientific and common names in Table 3.

northern red oak, white oak, red maple, and eastern hemlock all found in association. It is a long-lived temporary type, usually subclimax but approaching permanence on sandy soils.

A 26 acres northern white-cedar swamp (Type 37) is located east of French River north of Rocky Hill Road. Associated species found include eastern white pine, hemlock, and red maple. Cedar swamps have slow drainage but the water is not stagnant nor strongly acid.

Aspen (Type 16) is found on 12 acres. Quaking aspen is the predominant species with bigtooth aspen, paper birch, and pin cherry being common associates. This is a pioneer successional type which can be eventually replaced by pine or other hardwoods. It is relatively short-lived, and is important for certain species of wildlife such as grouse and deer.

The smallest forest cover type at Hodges Village is type 39, Black Ash - American elm - Red Maple. This group occurs predominantly as red maple at Hodges Village and elsewhere in New England. It occupies moist to wet muck or shallow peat soils, and is found in swamps, gullies, and small depressions of slow drainage or in elongated areas along sluggish streams. Occasionally yellow birch, black gum, and sycamore are found as associated species. This type is found on 10 acres.

There is a total of 635 acres of forest at Hodges Village Dam. The remaining 238 acres include wetlands, open fields, recreation areas, open water, and lands set aside for project operations and roads. Acreages for each land classification are summarized in Exhibit A, Table 1.

Recreation Areas

The project area immediately around the dam (approximately 30 acres) provides an atmosphere conducive to non-consumptive, passive forms of recreation. The parking lot at the dam site accommodates 30 vehicles for day-use recreation. Rest rooms, eight (8) picnic tables with fireplaces, and one large fieldstone fireplace for group use are available to the public.

Rocky Hill recreation area is an active recreation use area of approximately 37 acres, 5 of which are developed. Maintained by the town of Oxford, it contains one baseball field and a picnic area. No formal paved parking lot is available though off-road gravel areas accommodate approximately 30 vehicles.

Greenbriar recreation area, which is also maintained by the town of Oxford, is 72 acres in size, 15 of which are developed for active recreation use. A baseball field, two tennis courts and public rest rooms are available with approximately 100 parking spaces (unpaved) to accommodate the area. Development at both Rocky Hill and Greenbriar is somewhat limited due to the high rate of vandalism.

Areas surrounding these recreation areas are managed by the Massachusetts Department of Fisheries, Wildlife, and Recreational Vehicles, Division of Fisheries and Wildlife.

Water

Water areas include a shallow pool immediately north of Hodges Village Dam, Stump Pond, and the French River and its tributaries. All open water surface together total approximately 42 acres.

SECTION 4. FOREST MANAGEMENT

Factors Influencing Forest Management

Several factors influence the management of forest resources at the Hodges Village Dam. These factors need to be considered and evaluated when developing variable programs for forest management that will minimize adverse effects and optimize the benefits obtainable from the project resources.

Tree Diseases and Insect Pests

The major insect pest occurring at the project is the gypsy moth (Porthetria dispar). Tree damage is generally limited to oaks, grey birch and trembling aspen. The caterpillar stage of the insect feeds on the leaves and may cause complete defoliation. The number of trees killed by this defoliation is actually a small percentage of those stripped of their foliage. However, repeated defoliation may seriously weaken trees, especially on low quality sites, and make them susceptible to secondary attack by other insects or plant diseases. Native natural enemies do not consistently exist in large enough numbers or kinds to effectively check the gypsy moth. Severe cold over a long period of winter may kill the egg masses. Cold wet springs can decrease populations by the occurrence of a virus which develops as gypsy moth numbers increase.

During the inventory numerous egg masses were noticed. Infestation should be monitored and any trees killed will be salvaged using fuelwood permits and/or small timber sales.

Several other insect pests occur at Hodges Village including white pine weevil (Pissodes strobi), fall webworm (Hyphantria cunea), and tent caterpillars (Malacosoma spp.). The white pine weevil female burrows into the terminal to lay her eggs resulting in a crooked or multistemmed pine of reduced aesthetic and commercial value. Young pine growing in partial shade have a reduced incidence of infestation.

Diseases

No tree diseases were found to be significant. Should a serious outbreak of disease or insect damage occur, pathologists or entomologists from the U.S. Department of Agriculture and/or the University of Massachusetts will be asked for technical advise.

The maintenance of a healthy, vigorous forest containing a variety of tree species and age classes will help to prevent any large scale insect or disease damage.

Air Pollution

Air pollution is not known to be a serious threat to the forest at Hodges Village Dam at this time. The affects of acid rain on the forest and aquatic resources of northeastern North America is becoming a serious concern due to increased fossil fuel consumption. The soils in New England lack the ability to buffer acidic solutions thus metals, are leached from the soil and impact on aquatic organisms.

Soil Erosion

No existing soil erosion problems are evident at Hodges Village. Frequent fluctuations in water level may initiate erosion and slumping. Therefore, susceptible areas should be monitored frequently, especially after periods of high water.

Any newly detected erosion problems will deserve immediate corrective action and subsequent revegetation to prevent further damage.

Access

Thinning, fuelwood cutting, and timber harvesting are dependent in part on the availability of suitable access for removing forest products. The project has an extensive system of gravel roads. No new construction is planned.

Flood Control Operations

Operation of the Hodges Village Dam can affect, and also be affected by, forest management activities in the reservoir area. Flood control operations have not caused significant tree mortality due to the fact that no long term storage operations have yet occurred in the late spring or summer during the peak of the growing season.

Impoundment and subsequent drawdown in the reservoir tend to cause accumulations of woody debris at the log boom and intake gates. Therefore it is important that slash, logging debris and other material resulting from thinning, harvesting, and fuelwood cutting be handled in ways that will minimize maintenance problems at the dam.

Plantings

Natural regeneration is expected to perpetuate the forest stands now existing on the reservoir. Buffer strips of trees and shrubs may be planted to screen undesirable features of the landscape, to provide food and cover for wildlife, or for erosion control.

Thinnings

A complete forest inventory conducted in 1981 determined thinning needs for immature stands. Once stand examinations begin, the method and timing of all intermediate cuttings and all prunings will be designated for specific stands.

Thinnings reduce competition around trees for light, moisture and nutrients and encourage the development of understory and ground vegetation which is needed for wildlife food and cover requirements. Thinnings are used to increase growth in stagnated stands, to maintain growth in young stands, and of desired trees, to regulate stand density, and to create a diversity of species and age classes. The operation usually involves removing trees that have poor quality, no commercial or wildlife potential or are competing for space.

Maintenance of stand vigor is important but will be subordinate to stand attractiveness in recreation developments. In the vicinity of recreation sites, ponds, and streams, harvesting will be limited to removing hazardous, dying, or diseased trees that threaten the health and beauty of the forest or the safety of its users. Care will be taken to prevent damage to residual trees and ground vegetation. Slash may be chipped and used as mulch on critical sites. If the slash is to be piled, it will be done in such a manner as to provide cover for wildlife. All stumps will be cut close to the ground.

All cuttings will be done with attention on how residual stands will look, and will create an interesting variety of forest patterns. Trees and shrubs that add to the beauty of flowers in the spring and of colorful fruit and foliage in the autumn will be favored. In some stands, thinnings will be used to release promising young oaks and other trees having potential for greater mast production.

Timber Harvests

Forested areas in the reservoir are in need of silvicultural treatments to increase tree vigor, improve form, release suppressed trees, harvest mature timber and otherwise enhance the productivity of forest species desirable for aesthetics, wildlife, and forest products (refer to Exhibit B, Map 1).

The white pine stand (21-4-A) just north of Stumpy Pond will be managed to regenerate white pine and to provide sawtimber using the shelterwood system as directed in A Silvicultural Guide for White Pine in the Northeast (Lancaster and Leak, 1978).

The first cut is made during or immediately after an abundant seed year (a cardinal rule), and consists of removing 40 to 60 percent of the overstory. It is essential that the first cut results in the disturbance

of accumulated litter and the exposure of mineral soil so that white pine seed can germinate and grow. Defective, low quality trees will be removed.

The second cut, to remove the shelter trees, can take place after the seedlings have entered the period of rapid growth, usually after the first 5 to 10 years.

To provide ideal conditions for seed beds (and seedling development), it is necessary to disturb the forest floor to expose mineral soil and to break up the accumulation of litter. These conditions usually are created by scarification that results from logging during the snowless months.

Advance vegetative growth of broadleaf species, and a rank growth of grass and weeds, will seriously interfere with the development of white pine seedlings and, in most cases, guarantee failure in regenerating pine. Removal of competing sapling and pole sized hardwoods will maintain the stand as pine.

The oak-hickory type (52-3-A) is generally stagnant and would benefit from silvicultural treatments. Thinning using fuelwood permits is a possibility. The guidelines of Clark, et al (1970) in The Silviculture of Oaks and Associated Species will be followed.

Other Silvicultural Treatments

Boundary Maintenance

A boundary survey was completed in 1976. Boundary lines of sight will be cleared to a 3' wide path. Corner monuments will be marked by posting standard aluminum boundary signs as well as painting adjacent trees with red and white bands (each 3" wide). The boundary lines between monuments will be marked by posting a standard boundary sign at each 200'-300' interval. Trees will also be blazed in the line of sight at each aluminum sign and at each halfway point between these signs. Rectangular blazes will be cut approximately 6" long and painted red and white. All signs and blazes will face adjoining property.

In areas near private homes, signing and blazing may be reduced to a minimum if they are a visual nuisance to adjacent landowners.

This distinct boundary marking will make it easier for the public to know when they enter or leave Federal property to minimize the possibility of encroachments. This will also facilitate maintenance and resource management activities for Corps personnel.

The Park Rangers will have primary responsibility for the periodic inspection of boundaries.

Fuelwood Cutting

Forest thinnings of unmerchantable trees in many areas can be accomplished by fuelwood cutting. In accessible areas, firewood permits will be issued and commercial cordwood sales used where heavy equipment is needed.

Any firewood cutting must be closely coordinated with the Massachusetts Division of Fisheries and Wildlife and the town of Oxford, and be carefully supervised by Corps of Engineers personnel. People issued fuelwood permits should understand that their cutting is part of a planned timber stand improvement program. A brochure outlining management objectives and the importance of preventing damage to seedlings and remaining trees should be provided along with the fuelwood permit.

Management Direction

All silvicultural operations will be implemented under the direction of a Corps Park Ranger or forester. The ranger/forester will mark trees to be cut prior to undertaking silvicultural work.

SECTION 5. AQUATIC MANGEMENT

Introduction

Existing fisheries management is negligible at Hodges Village Dam due to water pollution in the French River. The Massachusetts Division of Fisheries and Wildlife has shown an interest in developing the fisheries potential once the habitat is able to support a viable program.

The Division stocks approximately 500 rainbow trout per year in Carbuncle Pond which is on adjoining property and drains into Cedar Swamp.

Factors Influencing Management of Aquatic Species

The principal factor influencing fish management is the nature of the habitat. Much of the area upstream of Hodges Village Dam consists of meandering streams and shrubby swamps.

Low summer flows and high water temperatures in the French River prevent a self-supporting trout fishery which would meet angler demand.

Water Quality

The French River is classified by the Massachusetts Division of Water Pollution Control as a Class B river, although it often falls below that grade. The principal water pollution problem is discharge of nutrients, coliform bacteria and solids at both the Leicester Wastewater Treatment Plant and the Oxford-Rochdale Wastewater Treatment Plant. Both facilities are secondary treatment plants.

Present plans call for upgrading both the Leicester and Oxford-Rochdale plants to reduce the levels of nutrients in the effluent.

Water Level Fluctuation

For all seasons of the year, periods of impoundment created in conjunction with flood control operations are normally short-termed. Since Hodges Village is a dry-bed reservoir and stream slopes are relatively steep and narrow, regulation usually returns water levels to normal in a few days time. Frequency as well as timing of water level fluctuations may, however, produce negative impacts on shallow water life forms and fish and wildlife. Monitoring of the environment behind Hodges Village Dam is necessary and recommended to determine the effects of substantial changes in water level incurred during flood regulation. Fluctuations in spring runoff can result in loss of habitat and mortality to fish eggs stranded by receding flood waters. This situation has not produce significant fish kills at Hodges Village to date.

Future plans call for the creation of a conservation pool which will provide low flow augmentation of the stream below the dam. Operational

procedures have not been formalized, thus any increase in pool levels and the subsequent affect on fisheries management cannot be estimated.

During much of the year the water level of the French River is too shallow to permit the establishment of game fish species.

Aquatic Vegetation

Aquatic plants provide an environment suited to many aquatic organisms. When weed densities are not excessive, protective shade cover and food quality in these areas permit the survival of abundant aquatic wildlife. No data are available on aquatic weed species inhabiting the French River. The extent of weeds on the main stem or tributaries is not considered significant to cause problems for the fishery, or angler opportunity.

Pesticides

Use of insecticides, and herbicides on Hodges Village Reservoir will be subject to constant review. Herbicide use to control undesired vegetation for project operations will continue and the impact of applications monitored. Aquatic habitats tolerate only limited amounts of these substances since they are absorbed into the food chain. Mortality of benthic organisms, even on a short-term basis, degrades the fishery. Pesticide applications for both project operations purposes and resource management practices will be carefully considered to measure impacts. Federal and State regulations will be followed when pesticides are applied.

Access and Fishing Pressure

Adequate access throughout the project area by unimproved roads and trails is shown in Exhibit B, Map 2. Fishing pressure is light due to the poor quality of the fishery.

Commercial Fishing

Aquatic populations are not large enough to sustain commercial fishing.

Wetlands

Hodges Village has extensive wetland areas in the forms of marshes, wooded and shrub swamps, and other riparian zones. These wetlands are very sensitive to human activities and must be carefully protected. They provide food and cover for the many water birds, amphibians, reptiles, and furbearing mammals. Management will be according to their classification in the National Wetlands Inventory of the U.S. Department of the Interior, Fish and Wildlife Service.

SECTION 6. WILDLIFE MANAGEMENT

Major Species

Wildlife in this area include the following mammals:

Whitetail Deer	<u>Odocoileus virginianus</u>
Red Fox	<u>Vulpes fulva</u>
Raccoon	<u>Procyon loter</u>
Porquippine	<u>Erethizon dorsatum</u>
Woodchuck	<u>Marmota monax</u>
Snowshoe Hare	<u>Lepus americanus</u>
Cottontail Rabbit	<u>Sylvilagus floridanus</u>
Skunk	<u>Mephitis mephitis</u>
Muskrat	<u>Ondatra zebethica</u>
Gray Squirrel	<u>Sciurus carolinensis pennsylvanicus</u>

Upland Game Bird Species include:

Ring-necked Pheasant	<u>Phasianus colchicus</u>
Woodcock	<u>Philohela minor</u>
Ruffed Grouse	<u>Bonasa umbellus</u>

Waterfowl include:

Mallards	<u>Anas platyrhynchos platyrhynchos</u>
Black Ducks	<u>A. rubripes</u>
Wood Ducks	<u>Aix sponsa</u>
Canada Geese	<u>Branta canadensis</u>

Most of the common local songbirds are also found in the area as are occassional hawks and ospreys.

Numerous red fox, cottontail rabbit, and porquippine tracks were seen in the vicinity of Conlin Hill during the timber inventory. This area is also where several hawks and an osprey were seen.

The Massachusetts Division of Fisheries and Wildlife stocks pheasants at Hodges Village as part of their annual put-and-take pheasant stocking program. Numbers vary each year depending on birds available. In 1980 324 ring-necked pheasant were stocked at Hodges Village.

No rare or endangered species have been reported at Hodges Village. An osprey has been reported on numerous occassions in all seasons in the area. Osprey are restricted to very limited areas in Massachusetts, but are not classified as rare or endangered.

Factors Influencing Wildlife Management

Forest Management

Prescribed timber stand improvements will have beneficial effects on wildlife by changing habitat. Silvicultural treatments may result in increased production of certain wildlife species which can take advantage of the increase in new herbaceous or woody growth. Harvesting and thinning will be used to increase or improve mast-producing hardwoods and other food producing tree species. Small clearcuts will be made at strategic locations to favor aspen, cherry, birch and other intolerants utilized by many wildlife forms. Prescribed burning may be used to maintain pioneer species and berry producing plants that benefit wildlife.

Once forest management activities are programmed and implemented the relationship between these activities and wildlife needs will be assessed.

Treatments may utilize the individual tree and/or group selection methods to regenerate uneven-aged forest stand classes and sustain tree species diversity. One-half to one acre clearcuts will also be employed in strategic spots for deer and other species habitat management. Some even-aged management in these mature, predominantly northern hardwood stands will benefit wildlife. Pheasant population dynamics will be altered by forest practices that create intermingled forest and field environments.

Besides harvesting, silvicultural practices such as improvement cutting will alter forest conditions. Songbird populations will react differently based on the kind and severity of cutting. In most areas accessible to public visitors, population increases are desirable to improve the opportunity for wildlife observation. Den and nest trees will be left standing, as will a number of dead trees, for wildlife that require cavities.

Recreation

Summer recreation activity inhibits wildlife production on the east side of the river due to the intense human interaction and consequential interruptions to wildlife populations. The west bank of the river shows no apparent detrimental effects on wildlife populations due to summer recreation. Snowmobiling is popular in the area but no data is available at this time on its effects on wildlife management.

Hunter Access and Designation of Hunting Areas

Access the Hodges Village area is excellent via the old railroad bed and numerous woods roads forming a network through the area. The only exception is Conlin Hill which can only be reached on foot off the railroad bed. There are also an abundance of foot trails and snowmobile trails throughout the area.

A no-hunting zone was designated in 1979 by the Massachusetts Division of Fisheries and Wildlife, the town of Oxford and the Corps of Engineers. This area, located on the east side of Old Howarth Road between the dam and Cedar Swamp, was closed to hunting due to the proximity of homes and the intensive recreation.

Wildlife Observation

Beyond the economic and sporting value of numerous wildlife species, Hodges Village fauna have an aesthetic value for those interested in wildlife observation. Small mammals and birds residing along the roadsides and dam are perhaps the more noticeable resident creatures. Visitation by sightseers will be enhanced by good cultural practices aimed at creating adequate food, cover and water conditions for wildlife near these sites.

Wildlife Management

The diversity of habitats at Hodges Village is a great asset to wildlife populations. The combination of mature forest, young forest stands, swamps, and open fields provide many ecotones. This diversity will be encouraged by keeping open fields down to brush and halting normal succession. The two large openings east of the railroad bed are of particular concern with many small openings also deserving manipulation to keep in primary stages of succession. The young maple stand surrounding Greenbriar recreation area will also be maintained in a stage of primary succession.

Wood duck boxes will be set in Stumpy Pond and in the reservoir immediately north of the dam. They will be cleaned and examined annually and replaced if necessary. This program should be done experimentally since the high rate of vandalism in this area may discourage this type of management.

Songbird houses will be installed in the vicinity of the dam. This area is frequented by many visitors and would provide for more wildlife observation. This location is also less susceptible to vandalism since the Project Manager resides on-site.

In the upper elevations (possibly Conlin Hill) where brush is not a concern to reservoir operations, wildlife brush piles will be constructed to provide shelter for small animals.

Law Enforcement

The enforcement of fish and wildlife laws is accomplished primarily by the natural resources officers of the Department of Environmental Affairs. Additional enforcement is also enacted by personnel of the Division of Fisheries and Wildlife, and the State Police.

SECTION 7. SPECIAL NEEDS

Rare, Endangered and Threatened Species

As directed by the Endangered Species Act of 1973, threatened, rare, or endangered species must receive high consideration in all resource or project operations activities. Present research needs include a survey of plants and animals requiring special management and protection at Hodges Village Dam. Osprey (Pandion haliaetus), an uncommon bird in Massachusetts, has been seen overwintering.

A program involving education, surveillance, and management of endangered or rare species will be instituted. Until detailed studies at Hodges Village identify areas known to be occupied by the species in question, surveillance of possible habitats by field managers is advised for terrestrial wildlife. Records will be kept on observations and findings of both plants and animals to help determine the status of all endangered species.

Training

Cooperation with all resources agencies in the planning and action stages of wildlife management will incorporate interagency training and university instruction for field managers. Implementation of current programs by the Massachusetts Division of Fisheries and Wildlife will involve sharing of personnel as part of the desired cooperative assistance.

Multi-disciplinary training will receive high attention and participation in on-site resource management activities will also be stressed. As conditions arise, managers are urged to identify other training needs and coordinate programs applicable to their management activities.

Research Cooperation

The Corps of Engineers supports university research and studies that attempt to solve current wildlife management problems. Hodges Village Reservoir is open for any activities that will benefit the education of university students, research personnel and environmental programs implemented at the project. The resulting research will lead to better resource management.

Information and Education

Information and education are important aspects of the forest, fish and wildlife management program. It is imperative that the public be informed of management decisions and programs. Efforts will be made to publicize programs and actions, such as timber sales.

Education efforts will be directed at explaining the purposes behind natural resources management and broadening the general public's understanding of ecological relationships.

The image and understanding of the Corps recreation-resource management program can only be enhanced by public contacts initiated through an organized public relations program.

Current information and education efforts concerning forests, fish and wildlife at Hodges Village Reservoir will be expanded to include attractive brochures that are educational, informative, and specific to the property.

SECTION 8. PERSONNEL AND FUNDING REQUIREMENTS TO IMPLEMENT PLAN

Forest Management

Preparations for timber sale in white pine stand.

1-GS-7 Park Ranger for 2 weeks = \$1,013.00

1-GS-4 Forest Technician for 2 weeks = 833.00

Fish and Wildlife Management

1 GS-4 Wildlife Tech. for 10 weeks = \$4,200.00

Wildlife survey, construction, placement,
and maintenance of bird boxes, cutting
and/or burning open fields to maintain
diversity.

REFERENCES

Clark, F.B., et al 1970. The Silviculture of Oaks and Associated Species. USDA Forest Service Res. Pop. NE-144. 66 pages.

Lancaster, K.F., and W.B. Leak. 1978. A Silvicultural Guide for White Pine in the Northeast. USDA Forest Service Gen. Tech. Report NE-41. 13 pages.

Society of American Foresters. 1975. Forest Cover Types of North America. Bethesda, Maryland. 67 pages.

Exhibit A

Table 1	Land Classification and Forest Cover Types at Hodges Village
Table 2	Total Timber Volume Estimate for Individual Species and Forest Cover Types
Table 3	Trees at Hodges Village
Table 4	Common and Scientific Names of Wildlife at Hodges Village Dam

Exhibit B Maps of Hodges Village Dam

Map 1	Forest Compartments and Cover Types
Map 2	Wildlife Management Areas

EXHIBIT A

TABLE 1

Land Classification and Forest Cover Types at Hodges Village

<u>Land Classification</u>	<u>Acres</u>
Project Operations/Roads	60
Recreation Area	30
Open Water	42
Wetlands	74
Open Field	32
Forest	635
TOTAL	873
<u>Forest Types</u>	<u>Acres</u>
Aspen (16-2-B)	12
Grey Birch/Red Maple	
(19-2-B)	60
(19-6)	65
White Pine/Northern Red Oak/White Ash (20-3-A)	231
White Pine	
(21-3-A)	28
(21-4-A)	57
Northern White Cedar (37-2-A)	26
Black Ash/American Elm/Red Maple (39-2-A)	9
White Oak/Red Oak/Hickory (52-3-A)	146

TABLE 2

Total Timber Volume Estimate for Individual Species and Forest Cover Types

	Board Foot Interational 1/4" Rule									
	<u>16-2-B</u> <u>(12 Acres)</u>	<u>19-2-B</u> <u>(54 Acres)</u>	<u>19-6</u> <u>(65)</u>	<u>20-3-A</u> <u>(231)</u>	<u>21-3-A</u> <u>(28)</u>	<u>21-4-A</u> <u>(57)</u>	<u>37-2-A</u> <u>(26)</u>	<u>39-2-A</u> <u>(9)</u>	<u>52-3-A</u> <u>(146)</u>	<u>TOTAL</u>
Aspen	18,600									18,600
Black Cherry			48,750							48,750
Cedar							89,700			89,700
Grey Birch			26,000							26,000
Hemlock							10,400			10,400
Red Maple		106,500		57,750		34,200	10,400	17,100		225,950
Red Oak				776,068	5,600				728,482	1,510,150
White Oak		46,500		71,610		25,650		4,725	153,300	301,785
White Pine	<u> </u>	<u>127,500</u>	<u> </u>	<u>1,067,220</u>	<u>289,100</u>	<u>1,419,300</u>	<u>54,600</u>	<u> </u>	<u> </u>	<u>2,957,720</u>
TOTAL	18,600	280,500	74,750	1,972,648	294,700	1,479,700	165,100	21,825	881,782	5,189,055

TABLE 3

Trees at Hodges Village

Northern White Cedar	<u>Thuja occidentalis</u>
Eastern White Pine	<u>Pinus strobis</u>
Pitch Pine	<u>Pinus rigida</u>
Black Ash	<u>Fraxinus nigra</u>
White Ash	<u>F. americana</u>
American Elm	<u>Ulmus americana</u>
Red Maple	<u>Acer rubrum</u>
Yellow Birch	<u>Betula alleghaniensis</u>
Paper Birch	<u>B. papyrifera</u>
Grey Birch	<u>B. populifolia</u>
Blackgum	<u>Nyssa sylvatica</u>
Sycamore	<u>Platanus occidentalis</u>
Eastern Hemlock	<u>Tsuga canadensis</u>
Black Cherry	<u>Prunus serotina</u>
Quaking Aspen	<u>Populus tremuloides</u>
Bigtooth Aspen	<u>Populus grandidentata</u>
Pin Cherry	<u>Prunus pensylvanica</u>
Eastern Red Cedar	<u>Juniperus virginiana</u>
Butternut	<u>Juglans cinera</u>

TABLE 4

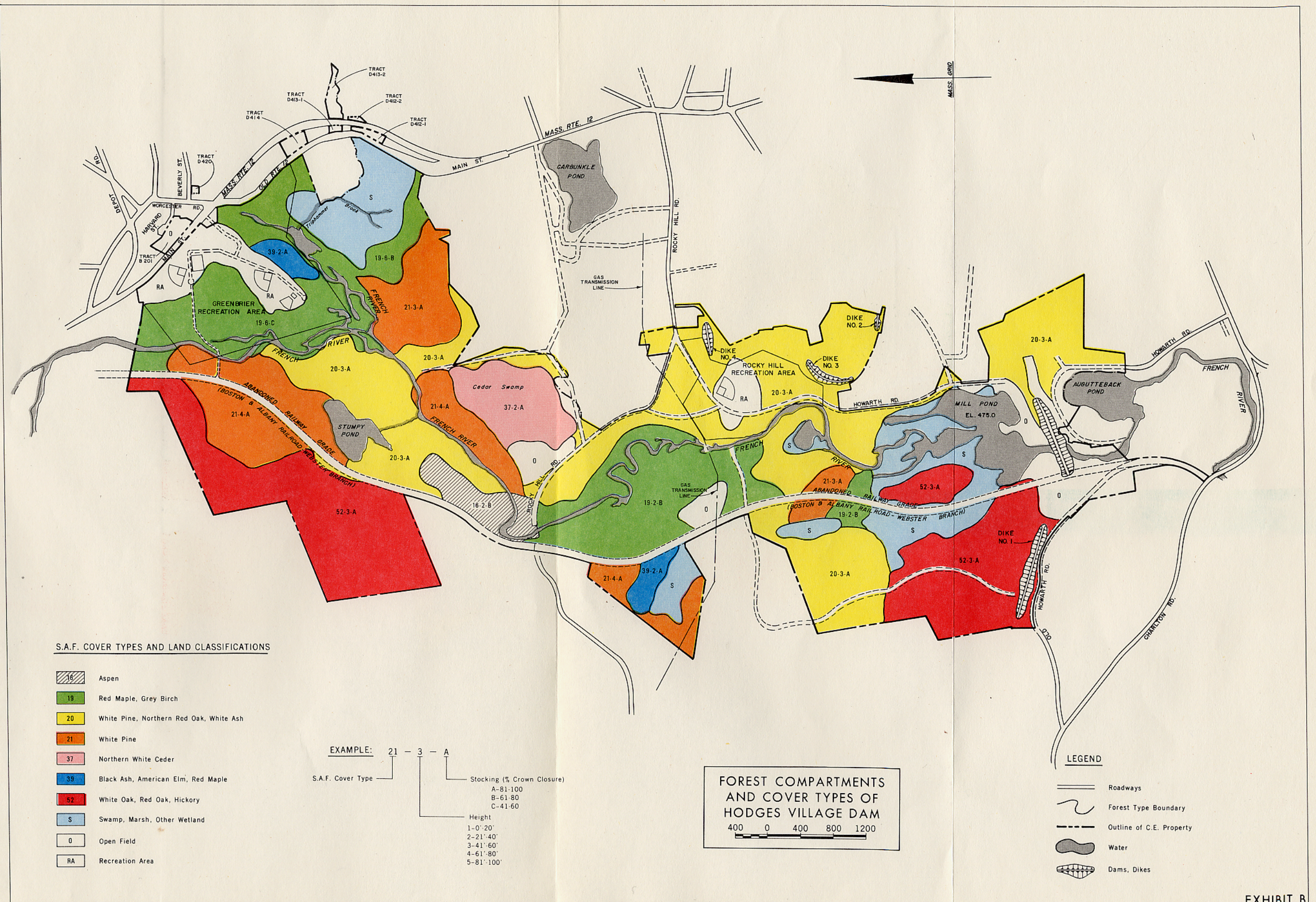
Common and Scientific Names of Wildlife at Hodges Village Dam

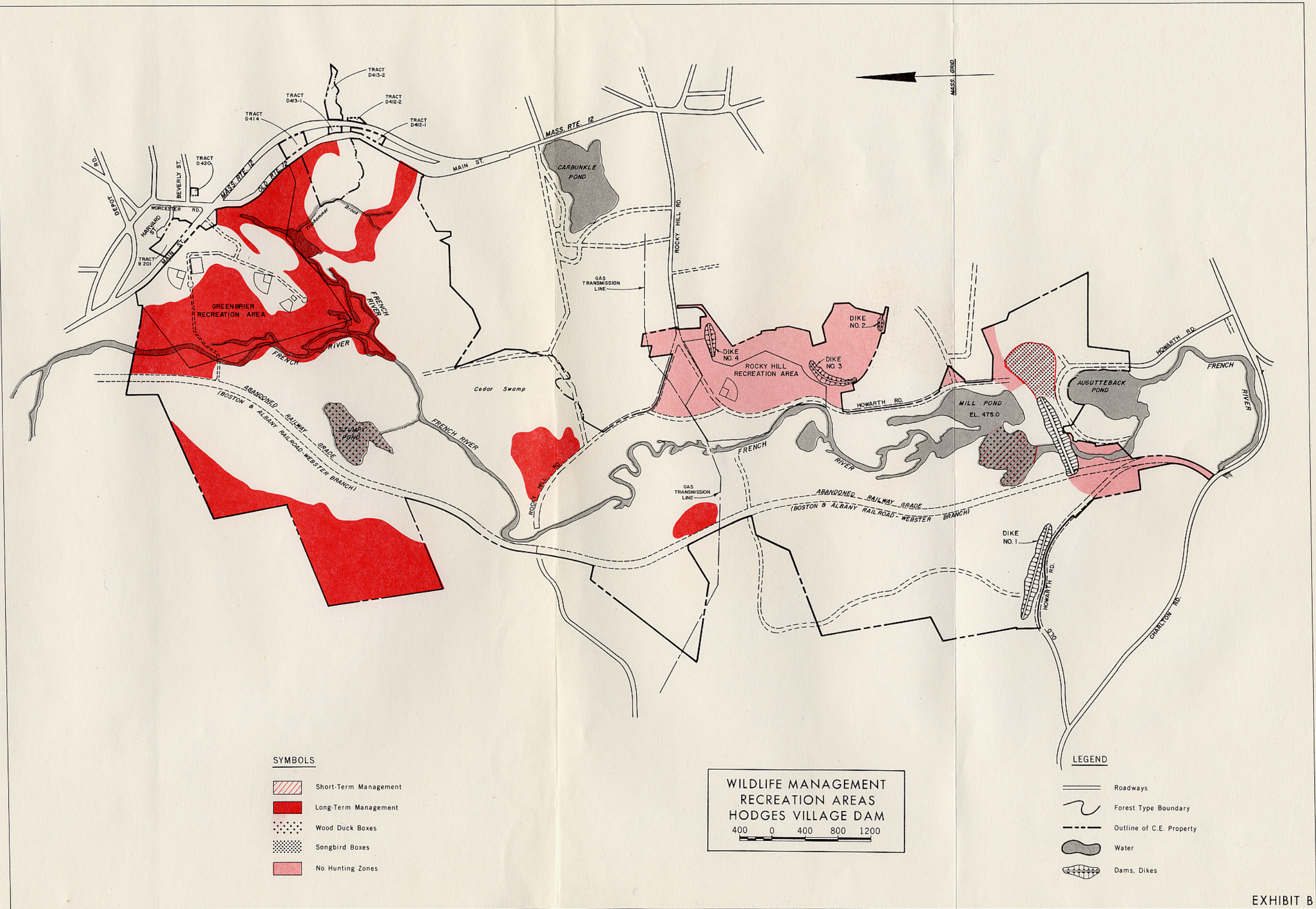
Major Mammal Species

Fox, Red	<u>Vulpes fulva</u>
Deer, Whitetail	<u>Odocoileus virginianus</u>
Hare, Snowshoe	<u>Lepus americanus</u>
Muskrat	<u>Onadatra zibethica</u>
Porquippine	<u>Erethizon dorsatum</u>
Rabbit, Cottontail	<u>Sylvilagus floridanus</u>
Raccoon	<u>Procyon loter</u>
Skunk	<u>Mephitis mephitis</u>
Squirrel, Gray	<u>Sciurus carolineansis pennsylvanicus</u>
Woodchuck	<u>Marmota monax</u>






Waterfowl and Upland Birds

Duck, Black	<u>Anas Rubripes</u>
Duck, Mallard	<u>A. platyrhynchos platyrhynchos</u>
Duck, Wood	<u>Aix sponsa</u>
Geese, Canada	<u>Branta canadensis</u>
Grouse, Ruffed	<u>Bonasa umbellus</u>
Pheasant, Ring-necked	<u>Phasianus colchicus</u>
Woodcock	<u>Philohela minor</u>



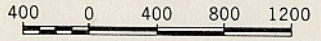


SYMBOLS






-  Short-Term Management
-  Long-Term Management
-  Wood Duck Boxes
-  Songbird Boxes
-  No Hunting Zones

**WILDLIFE MANAGEMENT
RECREATION AREAS
HODGES VILLAGE DAM**

400 0 400 800 1200



LEGEND

-  Roadways
-  Forest Type Boundary
-  Outline of C.E. Property
-  Water
-  Dams, Dikes